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10/824,926	04/14/2004	Hideharu Tajima	61,144 (70904)	7906

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EXAMINER	
SHEN, KEZHEN	

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/824,926	Applicant(s) TAJIMA ET AL.	
	Examiner Kezhen Shen	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14,17 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-14,17 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 2/20/2009 have been fully considered but they are not persuasive.

Regarding claim 1, applicant argues that Tominaga et al. does not teach the protective layer having pits, the substrate and the protective layer as being formed of the same material, the pits shorter than a reading light beam and super-resolution. The examiner disagrees. First, the as seen in Fig. 1 of Tominaga et al. the pits are within the substrate and the protective layer. While the pits are not formed on the protective layer, they are still in contact with the formation the pits on the substrate and would therefore be formed on the protective layer within the entire optical medium (Fig. 1, Col 4 Lines 15-28). Second, the substrate and the protective layer described in Tominaga et al. can be made of two of the same both of an organic resin (Col 4 Lines 48-60, Col 8 Lines 7-15). Third, Tominaga et al. discloses of a read light power so the mask layer is enabled for super-resolution readout (Col 10 Lines 7-20). The examiner merely cites the background section to clarify what Tominaga et al. is referring to in Col 10 Lines 7-20.

Regarding claim 1, applicant argues that Tominaga et al. and Jung et al. teachings as a whole would not teach the limitation of replacing the change materials of Jung et al. with the lands and pits. Tominaga et al. includes the teachings for the pit length to be shorter than the resolution limit (Col 2 Lines 24-35, Col 10 Lines 7-20).

Further, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that

any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-13 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga et al. 5,569,517, and further in view of Jung 5,516,568.

Regarding claim 1, Tominaga et al. teach an optical data recording medium, in which irradiation of a light beam is used for reproducing recorded data (reading light of Figs. 1 and 2), comprising: a substrate having pits (10 and 21 of Fig. 2, Col 4, Lines 15-28), corresponding to the recorded data, which are shorter than a resolution limit of an optical system of a reproducing apparatus which reproduces the optical data recording medium (Col 2 Lines 24-35 and Col 10 Lines 7-20 super-resolution is the ability to read an image beyond the diffraction limit resolution) and a reproducing layer for improving the resolution of optical signals from said pits and passing said improved resolution

optical signals from said pits to said optical system of said reproducing apparatus in a form reproducible by said reproducing apparatus (3 of Fig. 2, Col 3 Lines 38-55 Col 4 Lines 20-28 ht mask layer of the transmittance control layer increases the resolution of the read-out). Tominaga et al. fail to teach the pits are disposed on a light-incident surface thereof and the reproducing layer being provided so as to face said light-incident surface of said substrate.

However, Jung teaches the optical data recording medium wherein the recording layer is the light-incident surface and the reproducing layer is provided to face said light-incident surface (Jung 5 of Fig. 1, Col 4 Lines 38-51 one of ordinary skill in the art would have recognized the ability to replace the change-transferring material to a lands and pits). Therefore, taking the teachings of Tominaga et al. and Jung as a whole, one of ordinary skill in the art would be motivated to combine the teachings of an optical data recording medium and the teachings the recording and reproducing layer on the surface of the light-incident surface for the benefit of an increase in the data density of the optical disc and long archival capability (Jung Col 3 Lines 55 -61).

Regarding claim 3, Tominaga et al. teach the optical data recording medium as set forth in Claim 1, wherein the reproducing layer is made of a material whose transmittance changes in accordance with temperature (Col 2 Lines 52-67 Col 10 Lines 20-34 the crystal-to-crystal transition changes the irradiation of reading light and changes according to a predetermined temperature).

Regarding claim 4, Tominaga et al. fail to teach the optical data recording medium as set forth in claim 1 wherein: at least a part of that surface of the reproducing layer to which the light beam is irradiated is exposed to air. However, Jung does.

Jung teaches the optical data recording medium wherein at least a part of that surface of the reproducing layer to which the light beam is irradiated is exposed to air (Jung 7 of Fig. 1, Col 4 Lines 47-48 an air layer). Therefore, taking the teachings of Tominaga et al. and Jung as a whole, one of ordinary skill in the art would be motivated to combine the teachings of an optical data recording medium and the teachings air layer for the benefit of an increase in the data density of the optical disc.

Regarding claim 5, Tominaga et al. teach the optical data recording medium as set forth in claim 1 further comprising: a light absorption layer for converting an incident light beam directed toward said light-incident surface of said substrate to heat (Col 3 Lines 50-55 mask layer is heated by the light), the light absorption layer being contiguous to the reproducing layer (32 and 3 of Fig. 2, Col 4 Lines 20-25 the mask layer is apart of the light transmittance control layer therefore making the two layers contiguous).

Regarding claim 6, Tominaga et al. teach the optical data recording medium as set forth in Claim 1 further comprising: a reflective layer for reflecting an incident light beam directed toward said light incident side of said substrate (4 of Fig. 2, Col 4 Lines 29-35), the reflective layer being provided between said light-incident side of said substrate and said reproducing layer (10, 4 and 3 of Fig. 2, Col 2 Lines 55-60).

Regarding claim 7, Tominaga et al. teach the optical data recording medium as set forth in Claim 1 wherein: the reproducing layer is made of a metal oxide (Col 7, Lines 49-55 SiO_2 and mixtures of SiO_2).

Regarding claim 8, Tominaga et al. teach the optical data recording medium as set forth in Claim 7, wherein: the reproducing layer is made of a zinc oxide (Col 7 Lines 49-55 while zinc oxide is not specifically disclosed as a material in the dielectric layers, it is well known to one of ordinary skill in the art the interchangeable use of silicon oxide and zinc oxide in dielectric layers in optical recording medium).

Regarding claim 9, Tominaga et al. teach the optical data recording medium as set forth in Claim 5, wherein the light absorption layer is made of one of silicon, germanium and an alloy of silicon and germanium (Col 3, Lines 13-16 disclose the mask layer preferably tellurium and germanium as main components).

Regarding claim 10, Tominaga et al. teach an optical data recording medium, in which irradiation of a light beam is used for reproducing recorded data, comprising a substrate having pits (10 and 21 of Fig. 2, Col 4, Lines 15-28), corresponding to the recorded data, which are shorter than a resolution limit of an optical system which reproduces the optical data recording medium (Col 2 Line 24-35 Col 10 Lines 7-20 super-resolution is the ability to read an image beyond the diffraction limit resolution) a reproducing layer (3 of Fig. 2), the reproducing layer having a changeable transmittance with respect to an irradiated light beam irradiated on the reproducing layer and directed toward said light-incident surface of said substrate (Fig. 2, Col 2 Lines 52-67 Col 10 Lines 20-34 the crystal-to-crystal transition changes the irradiation of reading light and

changes according to a predetermined temperature, light beam passes to the reproducing layer and also passes through light-incident surface of said substrate), the changeable transmittance being changeable in accordance with an intensity distribution of the light beam irradiated on the reproducing layer (Col 5 Lines 2-9); and a reflective surface (4 of Fig. 2,Col 4 Lines 42-47), provided between the substrate and the reproducing layer (10, 4 and 3 of Fig. 2), for reflecting a light beam that has passed through the reproducing layer (Col 7 Lines 60-67). Tominaga et al. fail to teach a substrate having a light-incident surface containing pits and the reproducing layer being stacked on the light-incident surface of the substrate on which the pits are provided.

However, Jung teaches the optical data recording medium wherein the recording layer is the light-incident surface and the reproducing layer is stacked on said light-incident surface (Jung 5 of Fig. 1, Col 4 Lines 38-51 one of ordinary skill in the art would have recognized the ability to replace the change-transferring material to a lands and pits). Therefore, taking the teachings of Tominaga et al. and Jung as a whole, one of ordinary skill in the art would be motivated to combine the teachings of an optical data recording medium and the teachings the recording and reproducing layer on the surface of the light-incident surface for the benefit of an increase in the data density of the optical disc and long archival capability (Jung Col 3 Lines 55 -61).

Regarding claim 11, Tominaga et al. teach the optical data recording medium as set forth in Claim 10, further comprising a reflective layer provided between the substrate and the reproducing layer (4, 10 and 32 of Fig. 2, Col 4 Lines 32-35 reflective

layer is interposed between the light transmittance control layer and the protective layer), and including the reflective surface (4 of Fig. 2, Col 4 Lines 32-35 reflective layer).

Regarding claim 12, Tominaga et al. teach the optical data recording medium as set forth in Claim 10, further comprising a light absorption layer, provided between the substrate and the reproducing layer (32, 3 and 10 of Fig. 2), for converting, to heat, the light beam irradiated thereon (Col 3 Lines 50-55 mask layer is heated by the light).

Regarding claim 13, Tominaga et al. fail to teach the optical data recording medium as set forth in claim 1 wherein: at least a part of that surface of the reproducing layer to which the light beam is irradiated is exposed to air. However, Jung does.

Jung teaches the optical data recording medium wherein at least a part of that surface of the reproducing layer to which the light beam is irradiated is exposed to air (Jung 7 of Fig. 1, Col 4 Lines 47-48 an air layer). Therefore, taking the teachings of Tominaga et al. and Jung as a whole, one of ordinary skill in the art would be motivated to combine the teachings of an optical data recording medium and the teachings air layer for the benefit of an increase in the data density of the optical disc.

Regarding claim 17, Tominaga et al. teach a reproducing method of an optical data recording medium in which irradiation of a light beam is used for reproducing data recorded in the optical data recording medium, said optical data recording medium; including a substrate having a light-incident surface containing pits (10 and 21 of Fig. 2, Col 4, Lines 15-28), corresponding to the recorded data, which are shorter than a resolution limit of an optical system of a reproducing apparatus which reproduces the

optical data recording medium (Col 2 Line 24-35 Col 10 Lines 7-20 super-resolution is the ability to read an image beyond the diffraction limit resolution) and

a reproducing layer for resolution of optical signals from said pits and

passing said improved resolution optical signals to said optical system of said reproducing apparatus in a form reproducible by said reproducing apparatus (3 of Fig. 2 Col 4, Lines 25-28 the pits are within light transmittance control layer for carrying information), the reproducing layer being provided so as face said light-incident surface of the substrate (3 and 10 of Fig. 2 the light transmittance control layer and the protective layer are both in contact), the said reproducing method comprising the step of irradiating the light beam from the light-incident side of said substrate so as to reproduce the pits (Fig. 2 the reading light is above light transmittance control layer reading the pits Col 4 Lines 35-46). Tominaga et al. fail to teach a substrate having a light-incident surface containing pits and the step of irradiating the light beam from above the reproducing layer to the light-incident side of said substrate.

However, Jung teaches the optical data recording medium wherein the recording layer is the light-incident surface and the light beam is irradiated above the reproducing layer to the light-incident side of said substrate (Jung Light Beam, 5 and 1 of Fig. 1, Col 4 Lines 38-51 one of ordinary skill in the art would have recognized the ability to replace the change-transferring material to a lands and pits). Therefore, taking the teachings of Tominaga et al. and Jung as a whole, one of ordinary skill in the art would be motivated to combine the teachings of an optical data recording medium and the teachings the recording and reproducing layer on the surface of the light-incident surface for the

benefit of an increase in the data density of the optical disc and long archival capability (Jung Col 3 Lines 55 -61).

Regarding claim 18, Tominaga et al. teach a reproducing method of an optical data recording medium in which irradiation of a light beam is used for reproducing data recorded in the optical data recording medium, said optical data recording medium including a substrate containing pits (10 and 21 of Fig. 2, Col 4, Lines 15-28), corresponding to the recorded data, which are shorter than a
resolution limit of an optical system of a reproducing apparatus which reproduces the optical data recording medium (Col 2 Line 24-35 Col 10 Lines 7-20 super-resolution is the ability to read an image beyond the diffraction limit resolution) a reproducing layer stacked on a surface, of the substrate, on which the pits are provided (3 of Fig. 2 Col 4, Lines 25-28 the pits are within light transmittance control layer for carrying information), the reproducing layer having a changeable transmittance with respect to an irradiated light beam (Col 2 Lines 52-67 Col 10 Lines 20-34 the crystal-to-crystal transition changes the irradiation of reading light and changes according to a predetermined temperature), the changeable transmittance being changeable in accordance with an intensity distribution of the light beam irradiated on the reproducing layer (Col 5 Lines 2-9) and a reflective surface, provided between the substrate and the reproducing layer (10, 4 and 3 of Fig. 2, Col 2 Lines 55-60) for reflecting a light beam that has passed through the reproducing layer (4 of Fig. 2, Col 4 Lines 29-35), said reproducing method comprising the step of: reproducing said recorded data by irradiating a light beam onto said optical data recording medium from above the reproducing layer (Fig. 2 the reading

light is above light transmittance control layer reading the pits Col 4 Lines 35-46). Tominaga et al. fail to teach substrate containing pits in a light-incident side thereof, a reproducing layer stacked on the light-incident surface, of the substrate, in which the pits are provided and light beam irradiated on the reproducing layer and directed toward said light-incident side of said substrate.

However, Jung teaches the optical data recording medium wherein the recording layer is the light-incident surface, reproducing layer stacked on the light-incident surface of the substrate and the light beam is irradiated above the reproducing layer to the light-incident side of said substrate (Jung Light Beam, 5 and 1 of Fig. 1, Col 4 Lines 38-51 one of ordinary skill in the art would have recognized the ability to replace the change-transferring material to a lands and pits). Therefore, taking the teachings of Tominaga et al. and Jung as a whole, one of ordinary skill in the art would be motivated to combine the teachings of an optical data recording medium and the teachings the recording and reproducing layer on the surface of the light-incident surface for the benefit of an increase in the data density of the optical disc and long archival capability (Jung Col 3 Lines 55 -61).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kezhen Shen whose telephone number is (571) 270-1815. The examiner can normally be reached on Monday-Friday 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kezhen Shen/
Examiner, Art Unit 2627

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627